

Black Ibis, rare in the swamps, one shot.

Bittern, one shot in a swamp in the woods, only one seen.

Kingfisher, male and female, shot in the monte, not common ; the female has rufous on the breast, like the former.

Partridge, lives in the woods, not common, only one shot.

Small Finch, one shot, male and female alike ; rare.

There is a smaller Bittern of a light grey colour, also Snipe ; neither yet obtained.

June 29. Thermometer 9 A.M. 33° ; hard frost last night.

Large Owl, ♂, one shot in the monte ; lives in shady spots amongst large trees ; not seen again.

Creeper, same as shot previously, common, one shot. *Milvago chimango*, saw one today ; rare here. Woodpecker, one skinned, common. These birds have some habits like Woodpeckers in flight, feeding on trunks of trees, but spend much time on the ground, feeding on insects there.

[Subsequent to the 29th of June no entry appears in the diary, nor do any of the birds which have reached England seem to have been killed at a later date. We gather, however, from other sources, that he remained for some days at San Bernardo, occasionally riding over to Señor Cornejo's house at Campo Santo. About the beginning of July (the exact date is not quite clear) he was taken ill, and made at once for Campo Santo, evidently feeling that here he would be in good hands should his condition become at all serious. After this Durnford's strength began to fail rapidly, and, notwithstanding all the exertions of Señor Cornejo and his family, he gradually grew worse, and breathed his last on the morning of the 13th July, 1878.]

XLII.—*Ornithological Letters from the Pacific*.—No. IV.*
The Gilbert Islands, Kingsmill Group. By OTTO FINSCH,
Ph.D., H.M.B.O.U., &c.

DURING November and December last year I made a cruise in the Gilbert Archipelago, or Kingsmill group, on board

* For No. III. see *antèa*, p. 329.

a vessel engaged in obtaining natives as labourers for the Hawaiian kingdom, an opportunity which I embraced gladly, although it presented many inconveniences; for it is by no means a pleasure to be in the society of a clamorous lot of half-wild people crying, dancing, and howling day and night, of which our small brig of 156 tons had to carry more than 173, and, reckoning the ship's crew, in all nearly 190 souls. It may be well imagined that we had, in fact, a "full ship," and that it was rather crowded.

We visited the atolls of Butaritari and Makin (Touching and Pitt), Maraki, Apaiang (Matthew, Charlotte), and Tarowa Tarawo (Marshall, Knox), and, as regards what I saw in ornithology, I may say that the Gilberts are poorer even than the Marshalls, and not worth visiting by an ornithologist. Being already not unacquainted with the birds of the Pacific, my expectations were of course not very high; but even these were disappointed. As, however, only six species of birds had been previously noticed from the Gilberts, my investigations will, in any case, help a little to augment our knowledge.

What we observed at sea was even more unsatisfactory than what I had previously seen of the great ocean. Both species of Tropic-birds (*Phaeton æthereus* and *P. flavirostris*) were many times noticed in single specimens, seldom in pairs, but not of regular appearance. But in the Gilbert seas we had days in which not a feathered creature was to be seen at all, and animal-life in general was of like scarcity. *Tachypetes* I never observed myself, although this noble bird may occur, as I noticed feathers of it used by the natives as ornaments. Of Shearwaters (*Puffinus*) I noticed three different kinds—a black one, underneath white (apparently *Puffinus obscurus*), a second dark brown, breast and remaining underparts white, and a wholly dark one, with short tail, of which I do not remember the name now, although it is a well-known species to me; but on Taluit there are no books of reference, as in Hanover Square, or at the headquarters of the B. O. U.; and of the few volumes which I took along with me, I left the greater part at Honolulu, having on such

voyages always too many things to carry to leave room for books.

In regard to the first-mentioned species I may add that I observed the same also in the Marshall group. All these sea-fowl are not easy to recognize, as they seldom come near the vessel, cruising along the tops and in the valleys of the waves, where they disappear in a short time. They were also very few in number, and I never observed more than two or three in the course of a day. Therefore I hesitate to give any names with certainty, although I watched these birds with especial interest. Once I saw a very strange bird, which I could not make out to be any thing else but a *Lestris*. This bird had quite a different manner of flying from Shearwaters. It was of a light brown colour, and came so near to the vessel that I could easily see a white cross band on the underpart of the primaries. Of "Boobies" I observed two species, *Dysporus cyanops* and *D. sula*, which cruised round the vessel for a few times and then disappeared. They were observed only a few times singly, and when we were not more than perhaps a hundred sea-miles from land. Coming within sight of the latter large flocks of Noddies (*Anous stolidus*), mixed with *Sterna melanauchen* and a few *Gygis*, were repeatedly observed. They hovered over the waves, attracted by swarms of fishes, on which they frequently pounced; *Sterna bergii* especially falls down from a considerable height into the water and disappears for a moment. Of this species I observed once in the lagoon of Tarowa a large flock of perhaps fifty or more, sitting on a sand-bank, apparently resting. I may add here that I procured specimens of *Sterna melanauchen* in the first plumage in the beginning of October at Taluit. They were not then able to fly, and had black lancet-shaped spots on the front and vertex, besides other marked differences from the old bird.

Very striking it was to me to find not a single *Anous melanogenys* in the Gilberts; the only Noddy observed by me was *Anous stolidus*. At Tarowa this bird was breeding in the middle of December. The nests, composed of twigs and roots, were placed on the lower leaves of cocoanut-trees

at their junction with the trunk. Some birds were still collecting nesting-materials; and in the nests, which never contained more than a single egg, were fresh eggs, eggs in all stages of incubation, and young birds, of which some had attained their first plumage.

The young of *Anous stolidus* are readily to be distinguished from those of *A. melanogenys*, of which species I got young ones in nest-plumage in the beginning of January.

The birds seen along the shores in the lagoons of the Gilberts are just the same as those found in similar places in the Marshalls, *i. e.* *Streptilas interpres*, *Charadrius fulvus*, *Actitis incana*, and *Ardea sacra*, of which all of the three first-named species wore the full winter dress. *Charadrius fulvus* frequents the dry sandy grounds under the cocoanut-trees, and may be seen sometimes in parties up to four in number, which, however, do not keep together when on the wing.

In Tarowa I frequently observed *Numenius femoralis*, the "Kiwi" of the natives; but they were, as usual, very shy and out of reach on the white reef, where shooting, on account of the sun, sometimes proves dangerous. *Numenius femoralis* is, from what I hear from the settlers, only a winter visitor, and I should not wonder if its breeding-grounds were far north in Eastern Asia (Kamschatka). The species is very rare, and I never counted more than perhaps half a dozen. Besides this Curlew, I observed several times a Godwit, standing very high on its legs, which I supposed might be the eastern form of *Limosa melanura* (*L. melanuroides*, Gould). *Ardea sacra* was more plentiful than in the Marshalls, and on some places not at all shy, coming close to the huts of the natives and perching on the neighbouring trees. That white and slate-coloured specimens belong to one and the same species is a well-known fact, which I confirmed formerly by the investigation of full materials received from the Pacific, and which I can now verify from my own experience. In Butaritari I saw uniformly white birds going always in pairs; I also saw pairs, undoubtedly male and female, of which the one was white the other slate-coloured, or both of the latter colour or mixed with white. There

seems to be no regularity of sex or age, for even birds in the dirty pale slate garb, which I always took for the first plumage, prove to be old.

When on Tarowa, 12th December, a gentleman of the vessel went out shooting, and brought home six specimens : there were two males slate-coloured, one female slate-coloured, one female in the dirty so-called young dress, one female white, spotted with slate, one female uniformly white. All the females, even one which I thought to be a young bird, had very small ovaries, but a large patch destitute of feathers (a so-called breeding-patch) covering the whole belly. The gentleman told me that he had met a whole colony of this Heron in some shrubs, and that he felt sure they would have nests there. We intended to visit the spot again, but were disappointed, for the vessel was not going in pursuit of eggs and birds, but natives, and to make a harvest the brig had to leave, so we could not remain behind.

I observed twice *Eudynamis taitiensis* on Butaritari (7th December), but inquired in vain for *Carpophaga oceanica*†, which was unknown to settlers and natives. Of course, as bread-fruit trees are very scarce in the Gilberts, the absence of this Pigeon is not to be wondered at. In regard to this species I may notice here that I received, January 21st, a young one nearly able to fly, at Taluit, resembling the one I got in September.

Except the Cuckoo, which apparently is only a migratory bird, there is no land-bird on the Gilberts; and the total number of species is nineteen, of which I append a list.

<i>Eudynamis taitiensis</i> .	<i>Limosa melanuroides</i> .
* <i>Streptopelia interpres</i> .	<i>Ardea sacra</i> .
* <i>Charadrius fulvus</i> .	<i>Sterna bergii</i> .
* <i>Actitis incana</i> .	— <i>melanauchen</i> .
<i>Numenius femoralis</i> .	** <i>Anous stolidus</i> .

† Of this species I have since received one specimen alive from Ponapé, and will mention this here, as this species has not been observed there by Mr. Kubary, who, being no longer employed by Mr. T. C. Godeffroi, is now busy on plantation-work on the same island.

**Gygis alba.	Phaeton æthereus.
Lestris, sp. inc.	—— flavirostris.
Puffinus, sp. inc.	Dysporus cyanops.
——, sp. inc.	*—— sula.
——, sp. inc.	

The four species marked with an asterisk were observed by Mr. T. Peale on the Gilberts during Wilkes's U.S. Exploring Expedition, and the two marked with two asterisks are mentioned by G. R. Gray as occurring there.

Although my ornithological efforts look rather poor, I am otherwise very well satisfied with my investigations and collections. I have sent home thirty-two large cases of specimens, and among them a fine ornithological series. As I hope soon to visit the Carolines, I expect to be able to do more in my beloved branch of science, and to give greater satisfaction to my ornithological brethren.

XLIII.—*Archæopteryx macrura, an Intermediate Form between Birds and Reptiles.* By CARL VOGT, Professor in the University of Geneva †.

(Plate XIII.)

IN 1861 Hermann von Meyer, the distinguished palæontologist, described, in Bronn and Leonhard's 'Jahrbuch,' a Bird's feather found in the lithographic slate of Solenhofen, in Bavaria, belonging to the Upper Jurassic deposits. To the Bird revealed by this feather he gave the name of *Archæopteryx lithographica*.

Many of the learned believed it to be a skilful falsification. At that time the existence of Birds in the Jurassic epoch seemed as unlikely as that of Mammals in the Triassic.

Doubts were soon dispelled by Prof. Owen's memoir, published in the 'Philosophical Transactions' for 1863. Herein he described, as he alone knows how to do, a slab found by Dr. Häberlein, a physician at Pappenheim, which showed with remarkable clearness the hind-quarters of the Bird whence,

† Read at the Saint-Gall Meeting of the Congress of Swiss Naturalists, and translated from the 'Revue Scientifique,' sér. 2, ix. p. 241 (13th Sept. 1879).